

## WHAT IS CLAIMED IS

1. A rubber-modified high impact polystyrene resin composition containing a rubbery polymer, wherein the rubbery polymer is modified polybutadiene obtained by modifying high-cis/high-vinyl polybutadiene in the presence of a transition metal catalyst.  
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2. The rubber-modified high impact polystyrene resin composition according to claim 1, wherein the high-cis/high-vinyl polybutadiene has a 5 wt% styrene solution viscosity (St-cp; at 25°C) to Mooney viscosity (ML<sub>1+4</sub>; at 100°C) ratio (St-cp/ML<sub>1+4</sub>) ranging from 2.0 to 7.0.  
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3. The rubber-modified high impact polystyrene resin composition according to claim 1, wherein the high-cis/high-vinyl polybutadiene comprises 65 to 95 mol% of a cis-1,4 structure unit and 4 to 30 mol% of a vinyl structure unit.  
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4. The rubber-modified high impact polystyrene resin composition according to claim 1, wherein the high-cis/high-vinyl polybutadiene is prepared by using a metallocene catalyst.
- 20 5. The rubber-modified high impact polystyrene resin composition according to claim 4, wherein the metallocene catalyst comprises (A) a metallocene type complex of a transition metal and (B) at least one of (B1) an ionic compound composed of a non-coordinating anion and a cation and (B2) an aluminoxane.
- 25 6. The rubber-modified high impact polystyrene resin composition according to claim 1, wherein the modified polybutadiene has a cold flow rate of less than 20 mg/min.

7. The rubber-modified high impact polystyrene resin composition according to claim 1, wherein the rubbery polymer is present in an amount of 1 to 25% by weight.

5 8. The rubber-modified high impact polystyrene resin composition according to claim 7, further containing 2 to 60 parts by weight of a flame retardant per 100 parts by weight of the composition.

10 9. The rubber-modified high impact polystyrene resin composition according to claim 7, further containing 0.001 to 3.0 parts by weight of a peroxide per 100 parts by weight of the composition.

10. The rubber-modified high impact polystyrene resin composition according to claim 1 or 7, wherein the rubbery polymer is rubber particles dispersed in a polystyrene resin, and the rubber particles have a particle size ranging from 0.8 to 3.0  $\mu\text{m}$ .

15 11. The rubber-modified high impact polystyrene resin composition according to claim 1 or 7, wherein the rubbery polymer is rubber particles dispersed in a polystyrene resin, and the rubber particles have a graft ratio of 200 to 350 and a swelling index of 8 to 15.

20 12. The rubber-modified high impact polystyrene resin composition according to claim 1 or 7, wherein the modified polybutadiene has a 5 wt% toluene solution viscosity (T-cp; at 25°C) to Mooney viscosity ( $ML_{1+4}$ ; at 100°C) ratio (T-cp/ $ML_{1+4}$ ) ranging from 0.5 to 3.5 and a cold flow rate of less than 20 mg/min.

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13. The rubber-modified high impact polystyrene resin composition according to claim 12, wherein the modified polybutadiene comprises 65 to 95 mol% of a cis-1,4 structure unit and 4 to 30 mol% of a vinyl structure unit.
- 5 14. The rubber-modified high impact polystyrene resin composition according to claim 12, wherein the modified polybutadiene has an intrinsic viscosity of 0.5 to 7.0 measured in toluene at 30°C.